ORGANIZATION AND MANAGEMENT OF REHABILITATION SERVICES

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Cardiac rehabilitation reimbursement models around the globe

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OBJECTIVES Cardiac rehabilitation (CR) is a proven model of risk reduction, yet is grossly under-used. The reasons are multifactorial, but most centrally this is due to lack of reimbursement for CR services. Recently surveys of CR leaders in the United States and Latin America have documented wide variation in coverage. The objective of this study was to learn more about CR reimbursement approaches in other regions of the world.

METHODS In this cross-sectional study, we circulated an online survey to all members of the International Council of Cardiovascular Prevention and Rehabilitation (ICCPR), which consists of 24 associations (www.globalcardiacrehab.com), as well as other contacts. The survey was based on the items developed by Thirapatarapong et al. (JCRP, 2014) and Anchique-Santos et al. (Prog in CVD, 2014). For questions regarding coverage by government, respondents were asked to consult official government statistics or academic publications. Respondents were also asked to contact the 3 largest health insurance companies in their country (on the basis of premiums collected) to ascertain coverage levels.

RESULTS Thirty-one responses were received, from 25 different countries: 18 (58.06%) were from high-income countries, 10 (32.36%) from upper middle-income, and 3 (9.86%) from lower middle-income countries.

When asked who reimburses at least some portion of CR services in their country (respondents were asked to check all that apply), 19 (61.3%) reported the government, 17 (54.8%) reported patients pay out-of-pocket, 16 (51.6%) reported insurance companies, 12 (38.7%) reported that it is shared between the patient and another source, and 7 (22.6%) reported another source. Two (6.45%) respondents had no CR available in their country.

Regarding government coverage, respondents reported that 25.33±28.47 (mean ± standard deviation; median=22) CR sessions were covered, and that 72.50±41.46% of the total CR program cost is covered by government. CR aspects which were reimbursed most often included supervised exercise (n=14, 93.3%), followed by dietary counselling (n=12, 80.0%), mental health/psychological support (n=12, 80.0%), smoking cessation (n=12, 80.0%), hypertension control (n=12, 80.0%), hyperlipidemia control (n=12, 80.0%), education (n=11, 73.3%), weight control (n=10, 66.7%), and occupational therapy (n=8, 53.3%).

Regarding private healthcare insurance reimbursement, respondents reported that 22.2±15.4 CR sessions were covered, and that 48.3±50.5% of the total CR program cost is covered. Where the patient paid some money toward CR, the average cost was USD$17.5±6.85 per session or USD$345.0±38.2 per program. Almost half (48.8%) of insurance companies specified the type of healthcare professional who delivered CR services as a requirement for reimbursement.

CONCLUSIONS CR reimbursement around the world is inconsistent and insufficient. The ICCPR is using these findings to develop an advocacy toolkit to support CR leaders in securing greater CR coverage.

CARDIOVASCULAR REHABILITATION AND SPORTS MEDICINE

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Efficacy of trimetazidine and aerobic exercise rehabilitation on exercise cardiopulmonary function in aged patients with AMI

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OBJECTIVES AMI patients may take advantage on functional capacity from exercise training (ET), or from trimetazidine (TMZ).

To investigate the effects of the combination of TMZ with aerobic exercise rehabilitation may receive greater improvements in aged patients with AMI.

METHODS The 111 patients (men 95 and 16 women, mean age 69+/-3.7 years) with AMI aged (≥65 years) who had undergone successful PCI were randomized into for matched 4 groups: TT group (TMZ+training, n=30) received TMZ at doses of 20 mg three times daily and underwent a supervised program of AT oxygen uptake, three times a week for 12 weeks; E group (exercise, n=30) completed the ET program without receiving TMZ; T group (TMZ, n=25) received TMZ without exercise training; C group (control, n=26) was neither exercise nor received TMZ. All of patients received standard medications.

RESULTS VO_{2peak} was significantly increased in the TT (16%), T (13%), and E group (15%) (TT vs C: $P<0.001$; TT vs T and E: $P<0.05$). $Load_{peak}$ was improved in TT (15%), TMZ (9%), and E (11%) (TT vs C: $P<0.001$; TT vs T and E: $P<0.05$). $VO2_{AT}$ was increased in the TT (9%), T (3%), and E group (5%) (TT vs C: $P<0.01$; TT vs T and E: $P<0.05$). $Load_{AT}$ was no improved in TT (5%), TMZ (1%), and E (2%) (TT vs C: $P<0.05$; TT vs T and E: $P>0.05$).

CONCLUSIONS The addition of TMZ to ET determined greater improvements in exercise cardiopulmonary function in aged patients with AMI.

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Effects of Home-based Exercise Training on Quality of Life and Exercise Capacity among Minimally Invasive Mitral Valve Surgery Patients

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OBJECTIVES The purpose of this study is to examine the effects of 4-month home-based exercise training on quality of life (QOL) and exercise capacity (EC) in patients after minimally invasive mitral valve surgery (MIMVS).

METHODS Fifty patients (mean age: 48.24±13.54y, 23 female, 27 male) were recruited and received a personally home-based aerobic exercise prescription based on the cardiopulmonary exercise testing (CPET) during the first visit. Four month later, patients were invited to the hospital and being questioned about their exercise adherence. Patients were divided into two groups according to the level of their exercise adherence. The primary outcome measurement was exercise capacity, indicated by peak oxygen uptake (peak VO_2/kg) (measured by the maximal symptom-limited CPET on a cycle ergometer), and the secondary outcome measurement was quality of life (QOL) which was measured by Short Form-36 questionnaire (SF-36). Measurements were taken at baseline and after 4 months of exercise training. The paired t test was used to test within-group changes, and the 2-sample t test was used to test differences in change between the good and poor exercise-adherence groups. All data were computed with SPSS 17.0, and p value less than 0.05 means a significant difference.

RESULTS Forty-two patients finished the four-month follow up totally, with 19 patients in the good exercise-adherence group and 23 patients in the poor exercise-adherence group. The two groups had similar demographic and health profiles at baseline. Peak VO_2 improved significantly in good exercise-adherence group after 4 month of exercise training, from 20.56 ± 5.72 ml/kg/min to 22.17 ± 4.42 ml/kg/min ($p = 0.049$), while there is a nearly statistical improvement in the poor exercise-adherence group (pre- vs. post-: 20.94 ± 4.37 ml/kg/min vs. 22.67 ± 4.82 ml/kg/min, $p = 0.054$). Seven out of ten parameters of QOL, including physical functioning ($p = 0.032$), role-physical ($p = 0.002$), general health ($p = 0.031$), vitality ($p = 0.015$), social functioning ($p = 0.002$), physical component summary ($p = 0.009$) and mental component summary ($p = 0.042$), significantly increased in the good exercise-adherence group, while there is no statistical improvement of QOL in the poor exercise-adherence group. However, there is no statistical difference observed in the changing extent between the two different exercise-adherence groups.

CONCLUSIONS Four-month home-based exercise training is helpful to increase the QOL and EC of MIMVS patients. MIMVS patients in stable condition should be encouraged to participate in a home-based exercise training program.

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Research on the Effects of Mice' cardio-pulmonary function by exhaustive Swimming

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OBJECTIVES The main effect of HMB is to increase lean body mass and muscle strength, the main function of glutamine is to resist fatigue. In order to explore the effects of Mice' capacities on aerobic exercise when united supplements HMB and Glu or only HMB and Glu. Then explore whether united suppliants have collaborative effects, and provide theory of reference on nutrition supplements.